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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,760	12/27/2001	Byoung Ho Lim	049128-5053	9786

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WASHINGTON, DC 20004

EXAMINER

LANDAU, MATTHEW C

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,760

Applicant(s)

LIM, BYOUNG HO

Examiner

Matthew Landau

Art Unit

2815

Am

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings were received on January 30, 2004. These drawings are acceptable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by

Takahashi.

In regards to claims 1 and 10, Figure 6 of Takahashi discloses a method of fabricating a liquid crystal display (LCD) panel, comprising the steps of: preparing an upper substrate 12 and a lower substrate 11; bonding the upper substrate to the lower substrate; cleaning exposed surfaces (portions labeled B which are not covered with resist 21) of the bonded upper and lower substrates to remove an impurity thereon; and simultaneously eliminating/removing exposed surfaces (portions labeled B which are not covered with resist 21) of the bonded upper and lower substrates (paragraphs [0046]-[0050] of the English translation). It is inherent that there is at least some type of impurity on the exposed surfaces, and that impurity will be removed when the

surface upon which it resides is removed. Since Applicant has not defined what is meant by "an impurity", it can be considered that a certain portion of the exposed surfaces is an impurity.

Therefore, when the exposed surfaces are eliminated, the impurity is removed. In this regard, the eliminating step disclosed by Takahashi also reads on the claimed cleaning step. Note that there is nothing in the claims that requires the cleaning and eliminating steps to be performed in a certain order or at different times.

In regards to claims 2 and 11, Takahashi discloses the etching can be dry etching (paragraph [0054] of the English translation).

Claims 1, 3, 10, 12, 13, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsushima (US Pat. 6,391,137).

In regards to claims 1, 10, 13, and 21, Figures 1-4 of Matsushima discloses a method of fabricating a liquid crystal display (LCD) panel, comprising the steps of: preparing an upper substrate 100a and a lower substrate 101a; bonding the upper substrate to the lower substrate; and simultaneously eliminating/removing the exposed surfaces of the bonded upper and lower substrates (col. 8, lines 26-36). It is inherent that there is at least some type of impurity on the exposed surfaces, and that impurity will be removed when the surface upon which it resides is removed. Since Applicant has not defined what is meant by "an impurity", it can be considered that a certain portion of the exposed surfaces is an impurity. Therefore, when the exposed surfaces are eliminated, the impurity is removed. In this regard, the eliminating step disclosed by Matsushima also reads on the claimed cleaning step. Note that there is nothing in the claims that requires the cleaning and eliminating steps to be performed in a certain order or at different

Art Unit: 2815

times. Furthermore, since the upper and lower substrates (100a and 101a, respectively) are bonded prior to be immersed in an etching tank, exposed surfaces of both substrates are eliminated simultaneously and the thickness of the LCD panel is reduced uniformly.

In regards to claims 3 and 12, Matsushima discloses the step of eliminating exposed surfaces includes wet-etching (col. 8, lines 26-36).

Claims 1, 3, 10, 12, 13, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Shin et al. (US Pat. 6,197,209, hereinafter Shin).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

In regards to claims 1 and 10, Figure 5 of Shin discloses a method of fabricating an LCD panel, comprising the steps of: preparing an upper and a lower substrate 501; bonding the upper substrate to the lower substrate 502; cleaning exposed surfaces of the bonded upper and lower substrates to remove an impurity thereon 512/513; and simultaneously eliminating/removing the exposed surfaces of the bonded upper and lower substrates 508. Note that the claims do not require the cleaning step be performed prior to the eliminating step.

In regards to claim 3 and 12, Shin discloses the step of eliminating exposed surfaces includes wet-etching (col. 9, line 66 - col. 10, line 5).

In regards to claims 13 and 21, Shin discloses the step of removing exposed surfaces uniformly reduces a thickness of the LCD panel (col. 8, lines 44-55).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-10, 12-14, and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Matsushima.

In regards to claims 1, 3, 10, 12-14, 16, 20, and 21, Figures 2A-F and Figure 3 of this instant application discloses a method of fabricating a liquid crystal display panel, comprising the steps of: preparing an upper substrate 28 and a lower substrate 18; forming a gate electrode 15 on the lower substrate 18; forming a gate insulating film 19 on the lower substrate to cover the gate electrode; forming an active layer 21 on the gate insulating film; and forming a source electrode 13 and a drain electrode 11 on the active layer; and bonding an upper substrate 28 to a lower substrate 18. The difference between the admitted prior art and the claimed invention is the steps of cleaning the exposed surfaces of the bonded upper and lower substrates to remove and impurity thereon; and simultaneously eliminating/removing the exposed surfaces of the bonded upper and lower substrates. Matsushima discloses a method of fabricating an LCD panel including wet-etching the exposed surfaces of bonded upper and lower substrates (100a and

Art Unit: 2815

101a, respectively) (col. 8, lines 26-36). It is inherent that there is at least some type of impurity on the exposed surfaces, and that impurity will be removed when the surface upon which it resides is removed. Since Applicant has not defined what is meant by "an impurity", it can be considered that a certain portion of the exposed surfaces is an impurity. Therefore, when the exposed surfaces are eliminated, the impurity is removed. In this regard, the eliminating step disclosed by Matsushima also reads on the claimed cleaning step. Note that there is nothing in the claims that requires the cleaning and eliminating steps to be performed in a certain order or at different times. Furthermore, since the upper and lower substrates (100a and 101a, respectively) are bonded prior to be immersed in an etching tank, exposed surfaces of both substrates are eliminated simultaneously and the thickness of the LCD panel is reduced uniformly. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of the admitted prior art by using the etching process of Matsushima for the purpose of reducing the total weight of the substrates and obtaining a smooth surface.

In regards to claim 4, Figures 2A-2F of the instant application disclose the steps of: forming a thin film transistor on the lower substrate 18; forming a protective layer 25 on the lower substrate; and forming a pixel electrode 12 on the protective layer to electrically contact the thin film transistor.

In regards to claim 5, the admitted prior art discloses the pixel electrode 12 is formed of indium-tin-oxide (page 5, para. [0013] of the instant application).

In regards to claim 6, the admitted prior art discloses the protective layer 25 is formed of an acrylic organic compound (page 5, para [0011]).

In regards to claim 7, Figures 2A-2C of the instant application disclose the step of forming the thin film transistor includes: forming a gate electrode 15 on the lower substrate 18; forming a gate insulating film 19 on the lower substrate to cover the gate electrode; forming an active layer 21 on the gate insulating film; and forming a source electrode 13 and a drain electrode 11 on the active layer.

In regards to claim 8, Figure 2C of the instant application discloses the source electrode 13 and drain electrode 11 contact the gate insulating film.

In regards to claim 9, Figure 2F of the instant application discloses the pixel electrode 12 contacts parallel and inclined surfaces of the drain electrode 11.

In regards to claim 17, Figures 2D-2F of the instant application disclose the steps of: forming a protective layer 25 on the lower substrate; and forming a pixel electrode 12 on the protective layer to electrically contact the drain electrode 11.

In regards to claim 18, the admitted prior art discloses the pixel electrode 12 is formed of indium-tin-oxide (page 5, para. [0013] of the instant application).

In regards to claim 19, the admitted prior art discloses the protective layer 25 is formed of an acrylic organic compound (page 5, para [0011]).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of the admitted prior art.

In regards to claims 14 and 15, Takahashi does not appear to disclose forming the specific transistor elements. Figures 2A-2F and Figure 3 of the instant application disclose a method of fabricating a liquid crystal display panel, comprising the steps of: forming a gate

Art Unit: 2815

electrode 15 on the lower substrate 18; forming a gate insulating film 19 on the lower substrate to cover the gate electrode; forming an active layer 21 on the gate insulating film; and forming a source electrode 13 and a drain electrode 11 on the active layer; and bonding an upper substrate 28 to a lower substrate 18. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Takahashi by forming the transistor elements shown in the admitted prior art for the purpose of fabricating a functional LCD device.

Response to Arguments

Applicant's arguments with respect to claims 1, 10, and 14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

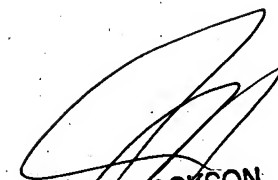
Art Unit: 2815

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Matthew C. Landau

Examiner

May 14, 2004



JEROME JACKSON
PRIMARY EXAMINER